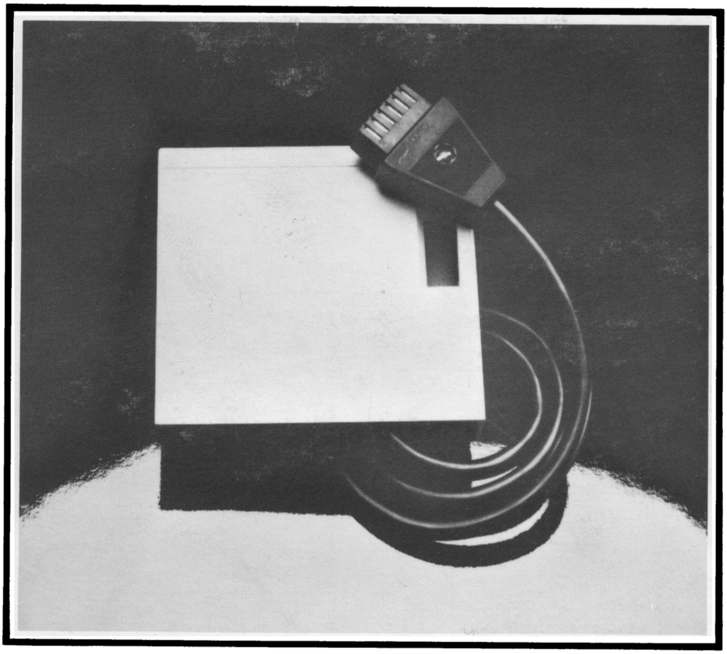
Alphacom 81

Cable Interface Manual for Atari Home Computers



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1. Description

A special device called an "interface cable" is needed to connect your printer to your computer. The interface is in the form of a "cartridge" that can be plugged into the back of the printer. The cartridge has electronic circuits inside it that allows the printer to "speak the language" of all Atari computers. It also allows printing of all the Atari text and graphics characters. By following the procedures given in this manual, you should have no trouble in getting the printer operating with your computer quickly and easily.

2. Connecting The Printer To The Computer

After you have checked that the printer is working properly in its self-test mode (refer to the Owner's Manual for the printer), it can be connected to the computer by following this procedure carefully:

a. Unplug both the printer and the computer from the power source.

b. Look at the cartridge. One end has a cable that connects to the computer; the end opposite that one has an opening (a wide slot) with the edge of a printed circuit board just visible in the opening (see Figure 1).

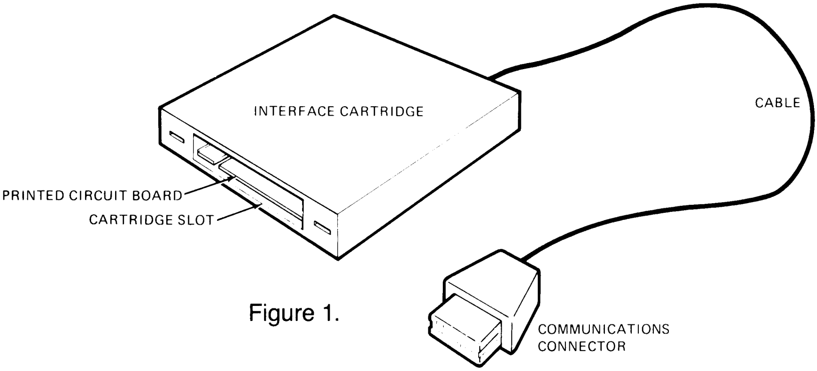


Figure 1.

c. Hold the cartridge next to the back of the printer with the opening in the cartridge facing the matching opening in the back of the printer, and the cable at the *left* side of the cartridge (see Figure 2). Insert the cartridge into the opening of the printer until the cartridge is firmly seated in the printer. IMPORTANT: If you try to put the cartridge in upside-down, a device in the cartridge will prevent it from connecting properly, and the printer will not work with the computer.

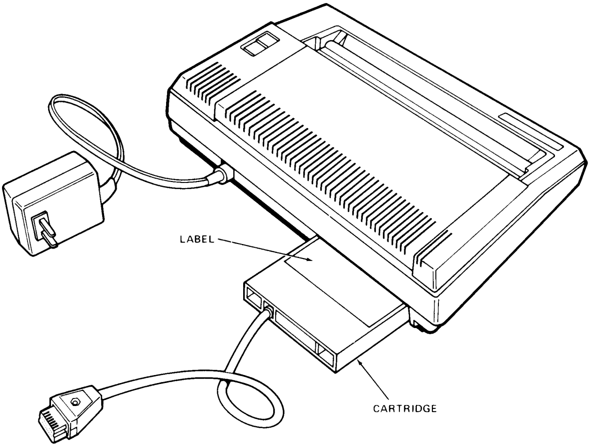


Figure 2.

NOTE: Just before the cartridge is fully inserted, a slight resistance will be felt — this is the point where the printed circuit board in the cartridge meets the interface connector in the printer. A gentle but firm push will make sure the cartridge is correctly installed.

d. The connector on the end of the cable which is attached to the cartridge should be plugged into the SERIAL I/O port on the computer. Once these connections have been made, you can plug the printer and the computer back into their power source.

NOTE: If you also have a disk unit, it should also be unplugged from its power source before any connections are made to it. Instead of running the cable from the cartridge directly to the computer, connect the cable to the extra plug position on the disk unit. (The disk unit is probably already plugged into the SERIAL I/O port of the computer anyway, and this connection should remain intact.) IMPORTANT: You may want to first try operating the printer with just the computer before connecting the disk unit. When the disk unit is connected, plug the printer into its power source before plugging the disk unit into its power source.

e. Check that the computer shows the normal power up message. Test the printer operation by pressing the PAPER ADVANCE button to see that the paper feeds properly. If the computer does not power up properly, or the printer fails to feed paper, turn off both units and recheck the connections.

f. Once you have successfully powered up the units in combination, try printing a message. Type this line on the computer exactly as shown:

```
LPRINT “TESTING”
```

g. Press the RETURN button on the computer. The printer should print out the word TESTING if the computer and the printer are working properly. If you still have a problem, make sure the cartridge is right-side up (as shown in Figure 2), and that all connections between the printer, computer, and disk drive (if used) are correct.

3. Using Your Printer With The Computer

The Atari computers have a powerful system for handling input/output devices such as a printer. You can start using this system with just four BASIC commands: OPEN, PRINT#, LPRINT, and CLOSE. If you have already used the PRINT command to put messages on the monitor screen, you already know most of what you will need to use the printer.

The OPEN Command

The first command you should use is OPEN, and should be written in this order:

```
OPEN#fn, aexp1, aexp2, filespec    Example: OPEN#1, 0, 0, “P:”
```

where “fn” is the file number (which can be any number from 1 to 7), “aexp1” is the output code number to the printer (0), “aexp2” is the device-dependent auxiliary code (also 0), and “filespec” is the file designation (“P;” for the printer).

The PRINT Command

The next command is PRINT#. This is similar to the normal PRINT command used to send data to the screen, except a file number is added to keep track of several files at once, so data in a particular file can be sent to the printer or the screen. The statement should be written in this order:

```
PRINT#fn; data                     Example: PRINT#1; data
```

where “fn” is the file number, and “data” is the string (text or graphics information) you want sent to the printer. If you opened a file to the printer as file number 1, then typical print statements would be:

```
PRINT#1; “HELLO”                   (prints HELLO)
PRINT#1; DATA$                     (prints contents of DATA$)
```

The LPRINT Command

LPRINT is a simple command which can do the following:

a. It causes the computer to send data to the printer instead of the screen.

b. It can be used in either the direct or deferred mode.

c. It does not require an OPEN or CLOSE statement, nor a device specifier.

d. It opens, prints, and closes a file with each LPRINT command. Each LPRINT prints at least one complete line, but printing cannot continue on the same line with two consecutive LPRINTs.

Here's how to use the LPRINT statement:

```
LPRINT "HELLO"                  (prints HELLO)
LPRINT DATA$                    (prints contents of DATA$)
```

The CLOSE Command

After you have finished your printing operations, you must CLOSE the file. This is done with the CLOSE command:

```
CLOSE#fn                        Example: CLOSE#1
```

where "fn" is the file number to be closed.

4. Printer Operating Modes

The printer has two operating modes: ASCII and ATASCII (Atari ASCII). ASCII is the default mode at power on. This mode prints the standard 96 character set and accepts control codes and escape sequences.

The ATASCII mode is used to print the special Atari graphic characters, as well as the standard 96 character ASCII set. This mode however, will not accept ASCII control codes as they are used to generate the Atari graphic characters.

Escape Sequences

Escape sequences are used to cause the printer to perform special functions, such as elongated or condensed printing.

When the printer is in the ASCII mode, these functions are specified by sending the printer an Escape character (27) followed by the desired function code. For example, ESC 14 turns on elongated printing.

While in the ATASCII mode, the printer must be sent *two* ESC characters in a row followed by the desired code. Using the above example, 27 27 14 turns on elongated printing instead of the normal 27 14 sequence in the ASCII mode.

For program compatibility, the ASCII mode will also accept double escape sequences.

The following table defines the various special functions and their escape codes.

ESC 65	Escape to ASCII mode. This sequence sets the printer in the ASCII mode.
ESC 70	Escape to ATASCII mode. This sequence sets the printer in the ATASCII mode.
ESC 75	Escape to crunch spacing. Sets the printer line spacing to half normal for continuous graphic pictures.
ESC 76	Escape to normal spacing. Sets the printer line spacing back to normal.
ESC 14	Elongated on. Any characters following this code are printed double width until an end of line character or an elongated off code is received.
ESC 15	Elongated off. Turns off elongated printing.
ESC 80 n	Set page size. This three byte sequence sets the logical page size. The last byte (n) is the logical page size in lines within the range from 1 to 127. When set, or after pressing the paper advance button, the printer assumes it is at the top of page.
ESC 12 n	Sets paging mode with one of the following choices: 0 — auto pagination is off and form feed to top of page. 1 — auto pagination is off and form feed is fixed number of spaces (8). 2 — auto pagination is on, auto form feed is five lines before bottom of page to top of page, and auto form feed to top of page when button is pushed in middle of printing.
ESC 71 n	Escape to graphics. This three byte sequence sets the printer into the graphics mode. (n) is the number of character positions to be interpreted as graphic patterns and must be within the range from 1 to 127. Since there are 8 columns of dots per character position, the next n*8 bytes are interpreted by the printer as graphic dot patterns; no special codes or end of line characters are recognized when this code is active.

	Each byte sent following the graphics code represents the next dot column of the printer. The least significant bit (0) is the topmost dot and the most significant bit is the bottom dot. Avoid sending the 155 code through the PRINT statement, since the system will incorrectly interpret the meaning and prematurely send the buffer to the printer.
ESC 28	Graphics line advance. This code advances the paper one half normal line space when printing graphics pictures. It should be used instead of the EOL character (inserted after a PRINT statement not ending in a semicolon or after LPRINT) which causes a full line advance.

Special Control Codes (Valid only is ASCII mode)

15	Underline on. This code causes all following characters to be underlined until turned off or an EOL character.
14	Underline off. This code turns off underlining.
12	Form feed. Causes the printer to advance the paper to the top of the next logical page.

EOL Code (Valid in both modes)

155	End of line. This code, in all cases, causes the printer to perform a carriage return and advance the paper a full line. It is automatically inserted after a LPRINT statement, or a PRINT statement not ending with a semicolon. The only time this code does not cause the printer to perform a line feed is if it is receiving graphic data or a third byte of a multiple byte sequence. You should never send this code through the PRINT statement (i.e., PRINT#4;"NEVER";CHR$(155); "THIS") because the 155 code causes the computer to clear the buffer. Even when the graphics code is active, EOL should not be sent this way.

5. Making Program Listings On The Printer

When making program listings, you probably used the LIST command to look at the listing on the monitor screen. To get a "hard copy" or printout of the listing, use the LIST "P:" command. This command is used to redirect the computer output which would normally go to the screen, to be sent to the printer instead. The command has this form:

LIST "P:"	(prints the complete program listing)
LIST "P:", 20, 100	(prints program lines 20 through 100)

6. Programming Examples

The first example demonstrates how to output data to the printer. The program prints the lines: TESTING followed by the numerals 1 to 10.

Enter either Program 1 or 2 exactly as shown:

PROGRAM 1

```
10  OPEN#4, 0, 0, “P:”
20  PRINT#4; “TESTING”
30  FOR N = 1 TO 10
40  PRINT#4; N
50  NEXT N
60  CLOSE#4
```

PROGRAM 2

```
10  LPRINT “TESTING”
20  FOR N = 1 TO 10
30  LPRINT N
40  NEXT N
```

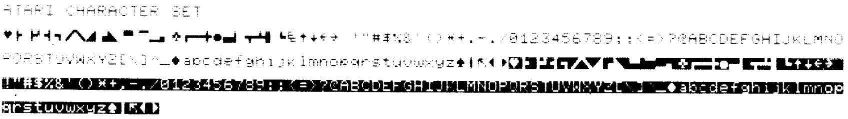
The result of running either program should be as follows:

```
TESTING
1
2
3
4
5
6
7
8
9
10
```

The next program prints the computer’s character set then lists itself. You may want to enter this program to see what the character set looks like, and to get a better feel of how to output data to the printer. NOTE: CHR$(#) is a “string function” which converts an ATASCII code number to a string that performs a specific operation or prints a specific character. CHR$(155) is an end-of-line command and is not a printable character.

Enter the following program, then type RUN.

```
10   OPEN #4,0,0,“P:”
20   PRINT #4;“ATARI CHARACTER SET”
30   PRINT #4;CHR$(27);“F”;
40   FOR N=0 to 255
50   IF N<> 155 THEN PRINT #4; CHR$(N);
60   NEXT N
70   PRINT #4
80   LIST “P:”
```


ATARI CHARACTER SET

(Not shown at actual size)

Available Control Codes

ESC 65	Escape to ASCII mode.
ESC 70	Escape to ATASCII mode.
ESC 75	Escape to crunch spacing.
ESC 76	Escape to normal spacing.
ESC 14	Elongated on.
ESC 15	Elongated off.
15	Underline on.
14	Underline off.
ESC 80 n	Set page size.
12	Form feed.
ESC 71 n	Escape to graphics.
ESC 28	Graphics line advance (½ linefeed).
155	End of line.

7. Warranty

To provide complete service on your Atari Interface Cable, the Customer Service Department MUST have record of warranty registration.

PLEASE READ, COMPLETE, and MAIL the Limited Warranty Information and Registration form as soon as possible.

Contact Alphacom BEFORE returning the interface cable for service.

Write to the following address:
ALPHACOM, Inc.
Retail Customer Service Department
2323 South Bascom Avenue
Campbell, California 95008

or
Call toll free: 800-538-7047
800-325-4395 (in California)

Limited Warranty Information

Alphacom, Inc. warrants to the original consumer/purchaser that this **Alphacom** equipment shall be free from any defects in material or workmanship for a period of 90 days from the date of purchase. If any such defect is discovered within the warranty period, **Alphacom's** sole obligation will be to repair or replace, at its election, the equipment free of charge on receipt of the unit and a copy of the Bill of Sale by **Alphacom** or any authorized service center. Charges prepaid, if mailed or shipped.

This warranty covers all defects incurred in normal use of the equipment and does not apply in the following cases:

a) Loss or damage to the equipment due to abuse, mishandling, accident or failure to follow operating instructions.
b) If the equipment has been serviced or modified by other than an authorized service center.
c) Has been damaged by being used with any products not supplied by **Alphacom.**

No implied warranty, including merchantability, applies to this equipment after ninety (90) days, and no other express warranty or guarantee, except as previously mentioned, given by any person, firm or corporation, with respect to this equipment, shall bind the undersigned.

Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the limitations or exclusions set forth may not apply to you. This warranty gives you specific legal rights, and you may also have rights which vary from state to state.

This warranty shall not extend to anyone other than the original purchaser of this equipment or the person for whom it was purchased as a gift.

Alphacom Warranty Registration

Thank you for purchasing an Alphacom product. To provide complete service on your equipment, we must have record of warranty registration. Please take a few moments to complete this warranty registration card and **MAIL IMMEDIATELY!**

NAME

ADDRESS SEX: ☐ Male ☐ Female

CITY STATE ZIP

Date of Purchase ______ **Serial Number:** ______

Please check if you are the: ☐ **Purchaser** ☐ **User** ☐ **Both**

Age range of User:
- ☐ Under 16
- ☐ 16-25
- ☐ 26-34
- ☐ 35-44
- ☐ 45-54
- ☐ 55-over

Type of Printer:
- ☐ Alphacom 42
- ☐ Alphacom 81

Type of Interface:
- ☐ Atari
- ☐ Apple
- ☐ Commodore
- ☐ Texas Inst.
- ☐ Other ______

What prompted purchase:
- ☐ Newspaper Ad
- ☐ Magazine Ad
- ☐ Store Display
- ☐ Other ______

Type of store where purchased:
- ☐ Department
- ☐ Drug
- ☐ Toy Store
- ☐ Discount Store
- ☐ Catalog Showroom
- ☐ Other ______

Alphacom 81

Paper Reorder Form

Each package contains two rolls (8¾″ x 83′) of thermal paper for the Alphacom 81 80-column printer.

	Cost per unit	No. of units	Total
Blue printout paper (2 rolls per unit)	$9.95	______	$______
Black printout paper (2 rolls per unit)	$10.45	______	$______
UPS Shipping/Handling			$3.00
If California resident add 6 or 6.5% tax			$______
		Total cost:	**$**______

Please send my paper order to:

NAME

ADDRESS

CITY STATE

PHONE # ZIP

Please make check or money order out to Alphacom, Inc. & Mail to:
Alphacom Paper Reorder, P.O. Box 306, Half Moon Bay, CA 94019

AFFIX
STAMP
HERE

ALPHACOM, INC.
2323 SO. BASCOM AVENUE
CAMPBELL, CA 95008

ATTN: Retail Customer Service

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